(24)

A

PROBATIONARY ESSAY

ON

VARIX,

AND

THE TREATMENT BY COMPRESSION

AS RECOMMENDED BY VELPEAU;

SUBMITTED,

BY AUTHORITY OF THE PRESIDENT AND HIS COUNCIL,

TO THE EXAMINATION OF THE

Royal College of Surgeons of Edinburgh,

WHEN CANDIDATE FOR ADMISSION INTO THEIR BODY,

IN CONFORMITY TO THEIR REGULATIONS RESPECTING THE ADMISSION OF ORDINARY FELLOWS.

BY

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To

Dr Bennet

with the author's best compts.

TO

JOHN LIZARS, Esq.,

LATE PROFESSOR OF SURGERY TO THE ROYAL COLLEGE OF SURGEONS

EDINBURGH,

This Essay

IS RESPECTFULLY DEDICATED,

BY

HIS OBLIGED FRIEND

THE AUTHOR.

ON VARIX,

AND

THE TREATMENT BY COMPRESSION,

AS RECOMMENDED BY VELPEAU.

Before entering upon the description of varix, it may be as well to mention the principal anatomical characters which distinguish the venous from the arterial system. Under the head of general disposition the veins may in some manner be compared to arteries, but they differ from them essentially in point of number, situation, functions, and organization. They resemble them in having a cylindrical form, and their calibre remains the same as long as they do not receive any branches. In the lower extremities this cylinder is interrupted in many places by swellings occasioned by the valves. These (the swellings) are not observed in the upper extremities, owing to the more easy return of the blood towards the heart. In the dead body the veins appear flat from the absence of blood, whereas

the arteries, although in the same condition, retain their round form. The former, however, immediately resume their cylindrical shape by distending them with liquid. With the exception of the circulatory system of the brain, each artery is accompanied by a vein, which latter divides into as many branches as the former does, so that, at the first point of view, there appears to be an equal number of both, but upon more minute observation, we frequently find that two veins of equal size accompany the artery, and there are some veins in the trunk, as the vena azygos, which have no accompanying arterial branch. Moreover, in the extremities they form two planes, the superficial and the deep—the latter of which is alone accompanied by arteries. The whiter the integuments, the more conspicuous are the superficial veins. The deep veins have a calibre much more considerable than that of the arterial trunks. From this it is evident that the sum total of the veins is much greater than that of the arteries. Portal, in his "Cours d' Anatomie,"* mentions, as the opinion of Borelli, that the veins were larger than the arteries, in the proportion of four to one, and nine to one according to Sauvage. Anastomoses are much more frequent in them than in the arteries—the branches anastomose with the

* Portal, p. 347.

trunks, and the trunks with each other, as the internal with the external jugular, and the superficial with the deep veins of the arm.

The veins are composed of two coats, an external and an internal. The external one is loose, more extensible than that of the arteries, and is composed of longitudinal fibres, whereas those of the arteries are circular. Portal, however, says that the venae cavae, before entering the heart, are provided with circular fibres, as they possess a movement of contraction which is appreciable.* The internal coat is smooth, thin, and resembles the internal coat of the arteries in appearance, although it differs from it in this respect, that bony points are seldom found in it. The coats of the branches of the veins are more compact and thicker than those of the trunks.† This greater density and thickness exist in all ages. In children all the veins are thicker than in old people, which is exactly the reverse with the arteries. What, however, distinguishes veins most essentially from arteries, is the existence of valves in the former; these are formed by the internal membrane, and are of great importance in the venous circulation. They do not exist in all the veins, as none are found in the pulmonary, venae cavae, or vena porta, &c. As a general rule they are more

* Portal, op. cit. † Ibid.

frequent in the veins at a distance from the heart, than in those nearer the centre of circulation. The valves are concave and semi-circular, and proportioned to the size of the trunks. Their concavity is turned towards the heart. Some have a long and a short extremity. They are sometimes pierced in different places, so that they occasionally resemble a sieve more than a membrane. The veins are said to possess fewer nervous filaments than the arteries. They are much more extensible in a transverse than in a longitudinal direction, and they are not very subject to rupture, as we see from the enormous dilatations which take place in them in varix. They do rupture, however, occasionally. Portal relates the case of a young woman, twenty years old, who died from the rupture of the right subclavian vein into the chest, also that of a young girl from rupture of the vena cava superior, and that of a phthisical patient from rupture of the vena azygos.* Mr Hodgson has recorded two cases where a vein in the calf of the leg gave way during violent cramp of the gastrocnemii; and Haller, in his physiology, mentions several similar cases.† One was rupture of the vena porta from the use of ice, and another that of the

* Portal, op. cit. p. 354, 355, 373.

† Haller, book ii. sect. 2, art. II.

sublingual vein from acute pain in the head. Many more are published in the works of Morgagni, and other physicians and anatomists. Rupture of a vein, although by no means common in its healthy state, is a very frequent occurrence in varix, as shall be mentioned hereafter.

When a vein becomes varicose, it not only dilates but lengthens, as is obvious from the numerous twistings and windings by which it is invariably accompanied. These give rise to many small dilatations at short distances from each other. The tumors thus formed are what are known properly under the name of varix; they are round, soft, of a uniform consistence, at least at the commencement of the disease, and have a blueish colour, which is more perceptible according to the whiteness of the integuments. They are said to occur at the points where the valves exist, which opinion is strengthened by the fact that at these, slight dilatations take place when a vein is injected. It is probable that these tumors are occasioned partly, but not entirely, by the valves, as the former exist in much greater number than the latter, and we must account for them in some other way: the following may perhaps be found sufficient. When a vein is fully distended with blood, and the cause of distension is permanent, the vessel bends and twists

upon itself, by the great extensibility of its coats. At the points it does so, the blood finding more difficulty in ascending towards the heart, becomes stagnant, as it were, and the vein, to accommodate itself to the increased quantity of blood, becomes still more dilated. Thus, in a short time, a regular tumor is formed. When the patient is in bed, and when the disease is only commencing, the veins may be hardly perceptible, but upon assuming the erect position they become distended, but fall again upon resuming the recumbent posture. Upon compressing at a single point a varicose vein, a feeling of elasticity is communicated to the finger, but on doing so between two given points, we have a feeling of fluctuation. Of course this only takes place when the vein is free from coagula. All the veins of the body are liable to this disease, but those in which the blood ascends against its own weight, and which are superficial, are most subject to it; consequently, we find it most frequently in the superficial veins of the lower extremity, the hemorrhoidal, and in those of the scrotum and spermatic cord. M. Montfalcon, in his article on this subject, mentions that M. Alibert had seen, at the "Hôpital de St Louis," the body of a man whose veins were all varicose.* Portal saw the veins of the membranes of the brain in the same

* Dict. des Sciences Med.

state, and the vena azygos was found similarly affected in a patient whose chest contained a quantity of water.

True varix in the upper extremity is very rare. M. Petit in his surgical works relates the case of a woman who had a varix at the bend of the arm, and in whom the superficial veins were so small, and so indistinct, from the obesity of the patient, that he was obliged to take blood from it one hundred and fifty times. M. Montfalcon* mentions another case which occurred to M. Cartier, in the hospital at Lyons, in a girl twelve years old. When a varicose vein happens to be in contact with a bone, the latter experiences a loss of substance from absorption, in such a manner that a groove is formed for the reception of the vessel. As has been already mentioned, the lower extremities are the ordinary seat of this disease. The femoral vein has been found in a varicose state,—it is generally the saphena, however, which is affected. The muscles by which the deep veins of the extremities are surrounded—their frequent contractions—the arteries which the veins accompany, and whose pulsations favour the return of the blood towards the heart, explain sufficiently why these are so seldom the seat of this disease;—but the superficial veins being without these conditions may experience a permanent distension, and

* Op. cit.

thus account for varix most frequently affecting them.

Those who labour under varices sometimes lose a great quantity of blood without being weakened by it, owing, it is said, to the blood in the varicose veins moving so slowly, that it is, if we may so speak, somewhat out of the course of the circulation, and the patients accordingly do not suffer in the same manner as if the blood was drawn from a vein in which the vital fluid was moving with its usual rapidity. Petit mentions that he has often drawn two or three pounds of blood from varices without causing the slightest weakness. Boyer also says that larger quantities of blood can be taken from varicose than from healthy vessels, without affecting the health.

Causes.—Whatever opposes the free return of blood to the heart, is the principal cause of varix. As predisposing causes, we may mention the direction of the veins, and every thing tending to weaken their coats, as general debility,—long and continued efforts,—fatigue, some trades, as smiths, carpenters, masons, &c.,—exposing the legs to the action of the fire,—and whatever increases the rapidity of the circulation, and causes congestion in the remote capillaries, and temporary stagnation in the veins. It may be said that each passing congestion of blood

has little effect in producing this malady, yet if we consider the constant reiteration of the cause during the course of a long life, we shall find that each congestion has its share (however small that may be) in the production of varix, and we shall be led to this opinion when we see that there is hardly an old man who does not labour more or less under this disease.

The chief exciting cause is an impediment to the free flow of blood in the veins, as tumors, enlarged uterus, ascites, obstruction in the abdominal viscera, and the use of tight garters. This, however, is not the sole cause, as varicose veins are found to exist, when we cannot explain them in this manner, as in the integuments covering a cancerous or medullary tumor, in bronchocele, &c., &c.; besides, we see them in adults, in whom, from their age, and from the examination of the abdomen, we have no reason to suppose that any tumor or obstruction exists to the free return of blood; and the only way in which we can account for this disease in them, is by admitting a constitutional diathesis. According to Velpeau, the crescentic arch at the top of the thigh has sometimes great influence in causing varix of the lower extremities. He has seen two patients in whom, in the erect posture, the veins of the leg were much swollen, which immediately returned to their natu-

ral size upon relaxing the crescentic aperture by bending and turning the thigh to the opposite side. Portal has seen it produced by the forcible distension of the veins after a long walk or dance. If the disease has once begun, it is incontestable that it is increased and aggravated by any cause which obstructs the passage of the blood; and if the valves become ruptured when the vein is in this dilated state, as is not at all unlikely to happen, the weight of the column of blood becomes a further cause of dilatation.

Progress.—This disease may exist in various forms of intensity; the vein may be very slightly enlarged, or it may attain a volume five or six times above its proper dimensions. The dilatation may be attended by severe pain. In general, when the varices are small, and not numerous, they occasion no inconvenience; but when they are large, and the greater number of the superficial veins have undergone this change, the lymphatic vessels in the neighbourhood are compressed, giving rise to engorgement of the limb, and causing a feeling of weight and distension. The greater the dilatation, the more, in general, is the uneasiness; but this is not always the case.

The progress of this disease is various—in some it is slow and causes little annoyance, the patient not demanding surgical assistance until after the lapse

of many years, while in others again the progress is much more rapid, compelling those who are afflicted with it to apply for relief. After it has commenced it goes on gradually increasing, aggravated by any increase to the rapidity of the circulation, and by standing for any length of time, more especially if the patient is obliged to use the affected limb as in some trades. When the veins are much dilated hemorrhage frequently takes place, but it is seldom fatal. The slightest pressure exerted over the wound, or the occurrence of syncope being sufficient to arrest it. The quantity of blood lost is in general small, but sometimes it is considerable. It is occasionally difficult to discover the opening from which the blood has flowed. M. Petit has mentioned the case of a woman who a short time before her delivery was obliged to carry to some distance a heavy burden. Upon going up a stair she suddenly felt her leg become quite wet with a warm fluid, which she supposed was her urine, as for some time past she had been subject to its involuntary discharge. She paid no attention to it at the time, but upon returning to her own house she found that her stocking and shoe were soaked in blood. She was unable to discover the point from which the hemorrhage came, and M. Petit, who saw her some time after, had considerable difficulty in finding it

out. As long as the veins are but moderately distended, the blood flows in a continued stream to the heart, but as the disease advances, and if no means are taken to remedy it, the vein bends upon itself, and at each turn which it makes, the blood begins to coagulate.

The clot varies much in size, and may be from a quarter to two inches long. The vein in this state feels hard. The coagula, for some time after they begin to form, can by gentle manipulation be returned into the circulation, but it soon becomes impossible to do so from their increasing magnitude and hardness. They may either act as foreign bodies, giving rise to inflammation of the cellular tissue and external coat of the vein, or they may obliterate the vessel altogether.

Mr Hodgson* says that he has seen four cases where the coagulum increased to such an extent as to obliterate the vein and produce a spontaneous cure. When suppuration takes place, the abscess, if not opened by the knife, bursts spontaneously, forming an ulcer which is exceedingly difficult to heal. From the irritation caused by the clots, the vein may become adherent to the skin, producing inflammation and ulceration, which may penetrate the vessel, when of course hemorrhage will take place.

* Hodgson on Diseases of Arteries and Veins, p. 542–544.

The bleeding, however, in this case, is different from that mentioned by Petit. The hemorrhage in varicose veins is always external, and never into the cellular tissue as occurs sometimes during the operation of venesection; and the reason is obvious, from the vein being intimately connected to the skin by adhesive inflammation.

Although hemorrhage is seldom fatal in this disease, yet the patient may be so debilitated by it, that death may ensue either from exhaustion of the vital powers, or by the production of some other complaint.

As the disease advances, the coats of the vein become gradually thickened and hard, and infiltration of serum takes place into the cellular tissue. At first the œdema is slight, and occurs only after the patient has had more exercise than usual, disappearing after the night's repose. This state does not last long; the cellular tissue becomes more and more infiltrated, and inflammation arises, causing either suppuration or effusion of plastic lymph round and into the coats of the vein. The leg now feels hard, and the patient is unable to undergo the same fatigue with impunity as formerly. He feels a dull aching pain in the course of the vein, which is alway more or less relieved by rest. Coagula soon follow with the usual train of symptoms described above.

Prognosis.—The prognosis is by no means dan-

gerous. The greater number of people afflicted with varix suffer little or no inconvenience, and they only apply for advice when they begin to suffer from some of the troublesome symptoms above-mentioned. The prognosis is most favourable in women during pregnancy. After delivery, although the veins may have been too dilated to return altogether to their natural dimensions, yet they always become much diminished in size, and frequently recover their proper elasticity. It is most unfavourable in internal varices;—but we have no means of discovering them, except in the case of hemorrhoids. In these, death has been known to happen from the sudden loss of blood, but as in them the patient always suffers much inconvenience, he applies in general before the disease has become extensive, and if he is willing to submit to an operation, a cure can almost always be promised.

Aneurismal Varix.—Spontaneous varix, as already mentioned, is exceedingly rare in the veins of the upper extremity; these however may become affected with this disease in an artificial manner, as when a vein is pierced by a sharp instrument, which at the same time wounds the subjacent artery. A communication is thus formed between the two vessels, and the blood, instead of flowing entirely along the artery, escapes partly into the vein, dilating it in its passage. I shall not however enter into a de-

scription of the aneurismal, as the cure for it and the spontaneous varix are totally different.

Cirsocele.—The veins of the spermatic cord and scrotum are subject to varicose enlargement. This disease is much more common than is imagined. M. Velpeau says that not above one-fifth of those affected with it apply for relief. When the veins of the spermatic cord are the seat of varix, it is known by the name of cirsocele, and by that of varicocele when those of the scrotum suffer. The causes are principally constitutional, aggravated by a constantly lax state of the scrotum, immoderate exercise, riding in particular, bad application of a truss to a hernial tumor, and venereal excesses. It is more common on the left than on the right side, which may perhaps be owing to pressure of the feces in the sigmoid flexure, or as Morgagni said, to the left spermatic vein terminating in the renal, whereas the right terminates in the vena cava below the point where the renal vein enters; but the difference in the length of the course of the two veins is so trifling, that this alone is not sufficient to account for the greater frequency of cirsocele on the left side. The commencement of the disease is characterised by dull aching pain in the loins and back, extending sometimes down to the tumor, and to the testicle, much increased by standing and by exercise,

but relieved by the recumbent posture, and by the suspension of the testicle.

The function of the testicle does not in general suffer, but it may become affected, secondarily, from inflammation taking place, giving rise to abscess and sinuses. Mr Pott mentions, however, that after inflammation of these veins, he has seen the testicle so wasted as hardly to be discernible. The veins sometimes attain a large size, and when this occurs chiefly below the abdominal ring they may be mistaken for an omental hernia. Both diseases are increased by coughing, and by the erect posture, and both subside or diminish in the recumbent position.

If, however, when the patient is made to lie down, the fingers are applied to the abdominal ring, and he is made to rise, or even to remain on his back, the swelling will re-appear if it is owing to varicose veins, whereas it cannot if dependent upon hernia. The palliative treatment consists in the use of a suspensory bandage, and in washing the scrotum frequently with cold water. The radical consists in the removal of the testicle—the ligature of the veins —their transfixion by the cautery, or the removal of part of the scrotum. The most simple and the most effectual, with the exception of the first, (which now is never performed), is that by means of the operation about to be described.

Hemorrhoids.—The most frequent cause of internal piles is a dilated state of the hemorrhoidal veins, but as the treatment more particularly to be recommended, necessary to cure and alleviate varix in other parts of the body does not succeed in hemorrhoids, I shall not enter into any description of the nature and treatment of this disease.

Varicose Ulcer.—One of the most troublesome consequences that results from dilated veins is the varicose ulcer. It is generally situated on the inner and lower third of the leg, a few inches above the ankle. It is exceedingly difficult to heal, as long as the cause which produced it continues; and even after cicatrization has taken place, it reopens from the same causes still existing which produced it at first. Varicose veins, and more especially when accompanied by this ulcer, have been attributed to disease of the blood. The cure was accordingly attempted by paying attention to regimen, and the administration of internal remedies. The ulcer is prevented from healing by the engorged state of the limb; its surface is of a yellowish grey colour, of an excavated appearance from the swelling and œdema of the surrounding parts, with here and there a red flabby granulation. The patient does not suffer much pain except when there is considerable inflammation. The discharge is yellowish and unhealthy-

looking. Treatment need hardly be attempted if the recumbent position is not to be strictly attended to, as this is the first and most essential part of the cure. The veins ought to be obliterated, but if the patient objects to submit to any operation, the ulcer must be treated on general surgical principles.

Treatment.—The means employed for producing obliteration of the veins in varix are cauterization, compression, section, incision, excision, and ligature. I shall confine my attention principally to compression, and that modification of it first introduced by M. Velpeau.

Compression may be practised in various ways, from the simple bandage, which is regarded as purely palliative, to the method employed by Breschet by means of forceps. The forceps employed by him resemble those used by Dupuytren for seizing the septum between the two portions of bowel in artificial anus after hernia. The vein, along with the skin, is grasped by the forceps, and compression employed for 24 or 36 hours. It must not be continued for a longer period for fear of gangrene. Troublesome results are apt to follow. A spontaneous cure, as already mentioned, sometimes takes place from the compression caused by the clots in the vein. Mr Hodgson has recorded four cases of

this kind. Mr Travers* also relates a case where the internal jugular vein was obliterated by the pressure of a tumor situated on the right side of the trachea, and covering the vessels. The artery was quite sound, but covered by a coating of lymph, which, as Mr T. says, shews that an artery not only remains pervious under a degree of compression which causes obliteration of a vein, but that the irritation has the effect of strengthening and supporting the coats of the latter. He also gives a case of cure of a varicose vein which he accomplished by means of artificial pressure. The method he adopted was the application of adhesive plaster in narrow strips round the limb, with as great a degree of tightness as could be borne. The vein became inflamed and permanently obliterated. There was great inflammation, accompanied by extreme tension of the part, which yielded to leeches, fomentations, and rest of the limb in the semi-flexed position.

The most recent mode of compression, viz. by the needle and ligature, is that which, in 1829-30, was first adopted by M. Velpeau. For several years he was the only surgeon who followed this practice, but his success was so great compared to that resulting from the other methods of cure, and his mode of

* Surgical Essays.

treatment attended by such slight inconvenience to the patient, that it became generally adopted by the other hospital surgeons in Paris. It has now become known in this country, and is recommended and practised by many surgeons.

The operation ought to be performed in the following manner. The patient should be in the erect position; for although the needles can be passed if he is lying, yet it is better to make him stand, as the surgeon is more certain in this case of inserting them under the vein. The vein is then grasped and raised with the integuments by the fore-finger and thumb of the left hand, and a needle (M. Velpeau uses a common pin) pushed through the skin immediately under it. As many needles as the surgeon thinks necessary ought to be passed, before a ligature is applied to any of them. If the thread is twisted round the needle before the others are passed, the patient becomes unsteady from the pain caused by the tightening of the ligature, and the operator is thus more apt to wound the vein in his insertion of the other needles. The number of needles used must depend upon the extent of the disease. I have never seen more than eight, nor less than two, employed. They should be passed, if possible, at a little distance from any branch that may happen to join the main trunk. The nearer they are to each

other, the more certainly will the vein be obliterated. Mr Liston, I believe, passes two about half an inch distant from each other. The ligature may be passed either simply round the needles, as M. Velpeau does, or it may be twisted like the figure 8, as is done in the operation of harelip. Considerable pain attends the application of the thread, which subsides, however, in a short time,—it may last for some hours, and even sometimes for the greater part of the first day. As little skin as possible should be raised with the vein, for it is by the tightening of the thread over this latter that the pain is occasioned, and the ulceration which frequently follows, being to a greater extent when much integument is involved, protracts the cure. The day after the operation some pain is felt both above and below the needle,—this is so trifling as to require no application. The leg may be raised on a pillow to facilitate the free return of blood to the heart. The integuments may be slightly inflamed, and occasionally inflammation takes place in the cellular tissue, exterior to, and surrounding, the vein, which may terminate in abscess. This latter is much more frequently seen when the common pin is used. From the second to the third day the blood begins to coagulate, and gradually, from this time, the vein imparts to the fingers the feeling of a cord. The cure is generally completed in about a fortnight

or three weeks, when the patient can resume his usual employment.

I am aware that many have no faith in this treatment, having frequently seen it fail. The same objection holds to all operations, and the surgeon, when he has it in his power to perform several different operations for the same disease, is only to be guided in his choice of that one, which is most likely in his opinion to succeed, and which is attended by the least danger and inconvenience to the patient.

One great cause of the non-success of many surgeons is their attempting a radical cure in cases which do not admit of one. Sir B. Brodie* says, "where the whole of the veins of the leg are in a state of morbid dilatation, and the distress produced by the disease is not referred to any particular part, there seem to be no reasonable expectations of benefit, except from the uniform pressure of a well-applied bandage."

The operation for varix ought only to be had recourse to with the view of obtaining a radical cure, where the pain is referred to some particular vein, while the other veins of the leg are in a healthy state, or occasion very slight inconvenience;—or where an ulcer exists evidently depending upon the

* Med-Chirurg. Trans. Lond. vol. vii.

enlarged varix,—or where there is fear of profuse hemorrhage from the giving way of some dilated vessel, while the other veins are natural. In all cases of this kind Velpeau's operation, I am confident, will not disappoint the expectations of the surgeon who practises it. Another cause of its non-success is the carelessness of the surgeon himself, in not being sufficiently careful in passing the needle under the vein.

In some cases the vein is pierced not only unintentionally, but intentionally. In these the patient runs great risk of phlebitis. In the only case which was unsuccessful in the practice of M. Velpeau, while I followed his service in the "Hôpital de la Charité," the veins of the thigh were dilated to three or four times their natural size, and the vessel had been transfixed by the needle. Severe constitutional symptoms followed, which however soon subsided after the pin was removed. M. Davat and M. Fricke of Hamburgh, I believe, both practise the transfixion of the vein. It is however a mode of operating which I am of opinion ought never to be adopted, from the dangerous consequences which may result to the patient. The other reason of the non-success of this operation, is the too early removal of the needles. In order that the cure may be complete and permanent, several circumstances are necessary:

1st. The close contact of the internal membrane of the vein. 2d. The effusion of plastic lymph. And, 3d. Compression for a certain time to prevent the effused lymph from being washed into the current of the blood. The lymph which has been effused, becomes gradually consolidated, and follows the general law with regard to this substance, as seen in the contraction of obliterated arteries, false membranes, &c. Each successive day, therefore, renders the cure more permanent. I have had several opportunities of seeing patients, who had been subjected to this treatment, many months after the operation had been performed, and in the whole of them the veins still remained obliterated, and felt like cords.

When compression is applied to a vein, the blood coagulates, and lymph is thrown out, but if the needles are removed on the second, third, or fourth day, as they frequently are in this country, adhesion most probably has not taken place to such an extent as to cause permanent obliteration, and the effused lymph and clot of blood may again be washed into the general circulating fluid. I have known of several cases where a cure was most probably prevented by the adhesion of the venous membrane not being permanent, from the too early removal of the needles. In all cases the needles ought to be kept in for at least a week or ten days, or even for a

longer period, if the surgeon should think that the lymph has not had sufficient time to consolidate.

The case in which this operation has been and always will be most successful (the same holds with the other modes of operating for varix,) is the varicose ulcer depending upon one or two enlarged veins. Here the surgeon may promise a radical cure. He is justifiable also, I think, in operating in cases even where no permanent cure is likely to be attained. It may be had recourse to as an adjuvant to the palliative treatment. In severe cases of varix, where almost all the veins of the lower extremity are in a dilated state, a laced stocking or a bandage uniformly applied, mitigate considerably the sufferings of the patient. He will however be still more relieved if he submit to the operation which I am now advocating. The surgeon ought beforehand to warn him that there is no prospect of a complete cure from the operation. If he neglect to do so, he will not only disappoint his patient, but bring discredit upon himself. In a case of this kind, Velpeau's operation is the only one which could be had recourse to, or which would be at all justifiable,—the other modes of treatment being more or less attended by danger, and frequently followed by troublesome results. In a late number of the *Lancet*, a death was reported

after this operation had been performed, but in Velpeau's experience, which, at the time I had an opportunity of seeing him, amounted to more than 100 cases of varix, varicocele, and cirsocele, in which this treatment had been followed, no alarming symptoms ensued, with the exception of the case already mentioned, in which the internal saphena of the thigh had been transfixed.

It is doubtless true that troublesome consequences may occasionally follow, as is seen from time to time in the slightest operation of surgery, but from what has been mentioned, they must be of such rare occurrence, as hardly to deter any surgeon from having recourse freely to this operation. I have practised it repeatedly myself, and as yet without having seen any bad result.

Varicocele and Cirsocele.—In these, Velpeau's operation is the one most likely to be attended by success. The needle ought not, in the latter disease, more especially if it exists on both sides of the cord, to be pushed under all the veins, as if we do, we run some risk of tying the vas deferens or the spermatic arteries. If either of these vessels is included, we are sure to destroy the function of the testicle. The spermatic artery lies at the back part of the cord, and the vas deferens

is known by the peculiar hard feel which it communicates to the fingers, and by the sensation of uneasiness frequently experienced by the patient when it is pressed, resembling that caused by a slight squeeze of the testicle.

By not passing the needle under the whole of the veins, we may run some risk of not making a radical cure. We are sure, however, of not destroying the function of the testicle, while there is every probability of greatly alleviating the patient's distress.

The treatment by incision, excision, and ligature has been found to be attended by so much danger to the patient, that they are by general consent abandoned by all modern surgeons; that, however, by cauterization and section by the subcutaneous puncture, as recommended by Brodie, is still practised.

The great objection to cauterization, whether by means of the moxa or by the caustic potass, is the uncertainty of its action. It is difficult to limit its effects, so that we run a risk either of not producing a sufficient degree of inflammation, and consequently no obliteration of the vein, or of producing so large a slough as to penetrate the vessel, and cause an abundant hemorrhage. The cure, also, when the operation does succeed, is much more tedious than that by compression with the needle and ligature,

from the slow tendency that sores have to cicatrize, when produced either by the potential or actual cautery, of which the moxa is a modification.

The objections to the treatment recommended by Sir B. Brodie are hemorrhage at the time of the operation, phlebitis, non-adhesion of the wound of the vein by the first intention, and perhaps the uncertainty of complete division of the vessel, thus preventing its obliteration. The hemorrhage at the time of the operation is in general easily arrested by means of a compress and bandage, but if these should slip, bleeding will occur. Sir Benjamin, in his article on this subject, already quoted, says that he has never seen any internal phlebitis follow. M. Malgaigne, however, in his "Manuel de la Médecine Opératoire," mentions that M. Beclard has seen it after this operation.

Non-adhesion takes place either from the imperfect division of the vein, from the cut surfaces of the vessel, when completely divided, not being kept in close contact, or from the blood effused into the cellular tissue not being absorbed, but giving rise to a foul unhealthy abscess, which, of course, makes the cure very tedious.

Of all the operations, therefore, for varix, Velpeau's seems to be the one which is most likely to be generally useful; 1st, from the great success attend-

ing it; 2d, from its simplicity of performance; 3d, from the slight inconvenience the patient experiences when subjected to it; and, 4th, from the comparatively short time necessary to accomplish a cure. For some time after the operation the patient ought to wear a laced stocking, or bandage, uniformly applied to the leg, so as to give support to the whole limb, as ought to be done in all cases, when a person has been confined to bed for a week or two, from any affection of the lower extremity.